



Field-Feeding Waste to Energy Converter (WEC)



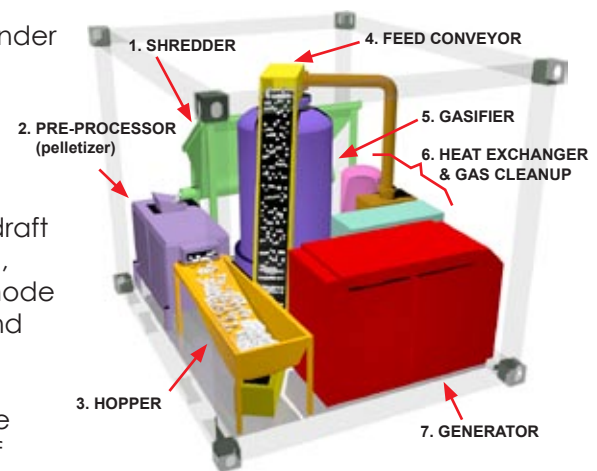
The Field-Feeding Waste to Energy Converter (WEC) will provide an onsite capability to convert solid waste into heat and electric power for field kitchens and organizational equipment. It represents a paradigm shift, whereby waste is considered a resource, not a liability.

Why is it Needed?

Military field-feeding produces significant amounts of packaging and food waste that must be backhauled to disposal sites at great expense. Studies show that waste is generated at a rate of 3–4 pounds per person per day, and a typical maneuver battalion or Force Provider base camp produces a ton or more of solid waste per day. Reliance on host nation support is problematic, often overwhelming local capabilities, presenting force protection challenges, and raising human health and environmental concerns. There is also a need for innovative energy sources that minimize consumption of JP-8 fuel. An onsite WEC will reduce solid wastes to non-hazardous byproducts and produce useful energy, thereby reducing two logistical burdens, waste and fuel, while enhancing force protection, reducing signature and environmental impact, and reducing dependence on fossil fuels.

Technology:

Promising new waste reforming technologies are under development at the desired small scale and high conversion efficiency. Multiple thermochemical conversion approaches are being explored under Defense Advanced Research Projects Agency (DARPA) and Small Business Innovative Research (SBIR) projects, including stratified downdraft gasification, indirectly heated pyrolysis/gasification, supercritical water depolymerization, and liquid anode fuel cells. In general, the solid waste is shredded and homogenized, then fed into the reactor where it is converted into combustible gases. The gases are used to generate electricity and heat to sustain the process and power a kitchen. The energy needs of a battalion-level field kitchen can be met by 100 kW heat and 5 kW electricity.



WEC System Concept

Key Features / Benefits:

Onsite Capability...Converts field-feeding solid wastes into heat and electricity.

Reduced Logistics...In terms of fuel consumed and trash backhauled.

Force Protection...Improved safety, reduced signature, and reduced DNBI while protecting the environment.

Turnkey System...Automated control and operation to minimize labor and avoid specialized training.

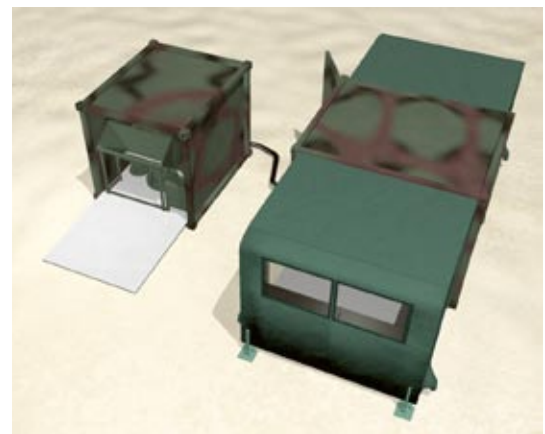
Rapid Deployment...Containerized or packaged on a high-mobility trailer for rapid deployment with field kitchens.

Point of Contact:

Combat Feeding

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**WEC Concept with
Containerized Kitchen P31**

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